



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,209	10/24/2005	Wolfram Stuer	12810-00149-US1	4503

30678 7590 12/19/2006
CONNOLLY BOVE LODGE & HUTZ LLP
P.O. BOX 2207
WILMINGTON, DE 19899-2207

EXAMINER
PUTTLITZ, KARL J

ART UNIT	PAPER NUMBER
1621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/554,209

Applicant(s)

STUER ET AL.

Examiner

Karl J. Puttlitz

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/6/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The addition reaction in claim 6 lacks antecedent basis in claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 8 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 2,999,107 by Lindsay et al. (Lindsay) or U.S. Patent No. 3,459,785 to Jones et al. (Jones), or U.S. Patent No. 3,880,928 to Drake (Drake).

The rejected claims are drawn to a process for hydrogenating a monoolefinically unsaturated compound which bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group to a saturated compound which bears

Art Unit: 1621

the same at least two functional groups, in the presence of a rhodium-containing compound, as a catalyst, which is homogeneous with respect to the reaction mixture.

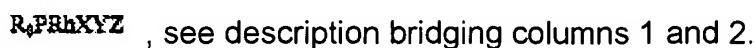
The rejected claims also cover those embodiments wherein the monoolefinically unsaturated compound which bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group is butenedinitrile to obtain adipodinitrile in the hydrogenation.

The rejected claims also cover those embodiments wherein at least 5% of the monoolefinically unsaturated compound which bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group is hydrogenated to a saturated compound which bears the same at least two functional groups.

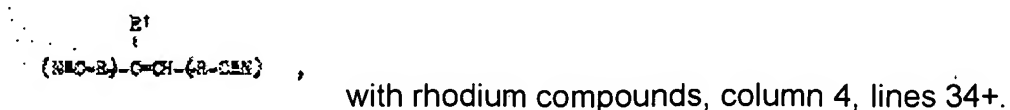
Lindsay teaches the preparation of adiponitrile from 1,4-dicyanobutenes with a catalyst of the following formula:



Jones teaches the same reaction with the following catalyst:



Drake teaches reduction of compounds of the following formula:



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay, Jones or Drake over each of U.S. Patent No. 3,013,066 to Alderson (Alderson) or U.S. Patent No. 3,484,475 to Cornforth et al. (Cornforth).

The rejected claims cover those embodiments the monoolefinically unsaturated compound used is a compound which is obtainable by adding two terminal olefins which bear the functional groups required to prepare the monoolefinically unsaturated compound containing at least two functional groups.

The rejected claims also cover those embodiments wherein the terminal olefins used are two olefins which each independently have the formula $H_2C=CHR^1$ in which R^1 is a nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group.

The rejected claims also cover those embodiments wherein the addition is carried out in the presence of a compound, as a catalyst, which is homogeneous with respect to the reaction mixture and contains rhodium, ruthenium, palladium or nickel.

The rejected claims also cover those embodiments wherein the addition is carried out in the presence of a compound, as a catalyst, which is homogeneous with respect to the reaction mixture and contains rhodium.

The rejected claims also cover those embodiments wherein the same rhodium-containing compound is used as a catalyst in the addition.

Lindsay, Jones and Drake fail to explicitly teach these embodiments of the instant invention. However, it is for this proposition the examiner joins Alderson or Cornforth. For example Alderson teaches dimerization of olefinic compounds of the

following formula:
$$\begin{array}{c} \text{H}_2\text{C}=\text{C}-\text{X} \\ | \\ \text{H} \end{array}$$
 wherein X can be a nitrile, see column 1, lines 65+, with rhodium, see Example VII. On the other hand, Cornforth teaches dimerization of acrylonitriles, see column 1, lines 49+, for example. Those of ordinary skill would have been motivated to modify Lindsay Jones or Drake to include a dimerization step to provide the olefinic starting materials since Alderson and Cornforth teach that this process can provide the desired olefinic starting materials, which can be further hydroisomerized with rhodium, see for example, Cornforth at column 4, lines 9-14. Therefore, the requirement that a monoolefinically unsaturated compound used is a compound which is obtainable by adding two terminal olefins, is prima facie obvious in view of the applied references since the references teach or suggest this step with a reasonable expectation of success.

Claims 18-20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindsay, Jones, and Drake.

The rejected claims also cover those embodiments wherein the hydrogenation is carried out at a partial hydrogen pressure in the range from 0.1 bar to 200 bar.

The rejected claims also cover those embodiments wherein the hydrogenation is carried out at an average mean residence time of the monoolefinically unsaturated compound which bears at least two functional groups which are each independently selected from the group consisting of nitrile group, carboxylic acid group, carboxylic ester group and carboxamide group which is in the range from 0.1 to 100 hours.

The rejected claims also cover those embodiments wherein the hydrogenation is carried out at a temperature in the range from 30°C to 160°C.

The rejected claims also cover those embodiments wherein the mixture obtained in the addition is fed to a hydrogenation without removing the rhodium-containing compound used as a catalyst.

The applied references either teach the required reaction parameters are within the motivation of those of ordinary with a view to optimize the disclosed processes, see MPEP 2144.05 ("Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)"). Therefore, the required elements of the rejected claims are prima facie obvious of the applied references since these references teach or suggest the elements of these claims with a reasonable expectation of success.

Art Unit: 1621

Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones.

The rejected claims also cover those embodiments wherein the hydrogenation is carried out in the presence of a rhodium-containing compound, as a catalyst, which is homogeneous with respect to the reaction mixture and has particular formula.

Notwithstanding the fact that Jones fails to explicitly teach the required structures of the recited rhodium catalysts, Jones teaches the required catalysts with the requisite particularity and guidance that the recited catalysts would have been *prima facie* obvious.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 and 18-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4, 7 and 8 of copending Application No. 10/519523 in view of Lindsay, Jones and Drake.

The conflicting claims recite substantially the same process, notwithstanding the absence of a rhodium catalyst. However, Lindsay, Jones and Drake teach that rhodium catalysts are effective for the required hydrogenations. Therefore the instant claims would have been well within the motivation of those of ordinary skill based on the combination of the conflicting claims and Lindsay, Jones and Drake.

This is a provisional obviousness-type double patenting rejection.

Claims 1-22 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2, 5-18 and 29 of copending Application No. 10/560740. Although the conflicting claims are not identical, they are not patentably distinct from each other because the conflicting claims recite a process for the process for hydrogenating mono-olefinic compounds with the recited catalysts, with such particularity that the instant process would have been prima facie obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K. Page, can be reached at telephone number (571) 272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karl J. Puttlitz
Assistant Examiner